

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DAVID R. DOWE

Appeal No. 96-0656
Application 08/099,277¹

ON BRIEF

Before THOMAS, FLEMING and DIXON, **Administrative Patent Judges.**

DIXON, **Administrative Patent Judge.**

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection² of claims 7-18, which are all of the claims pending in this application.

¹Application for patent filed July 29, 1993.

² The rejection under 35 U.S.C. § 112 was obviated by the entry of the after final amendment filed March 31, 1995 (paper no. 8).

BACKGROUND

The invention is directed to a battery cell charging apparatus which is to be used with multiple battery cells of the same size. The charging apparatus performs a polarity check to determine if at least one battery cell is installed with reverse polarity. The charging apparatus also performs a discrimination check to determine if only rechargeable battery cells are present in a charging well. The charging apparatus compares the voltage across the battery cells to reference voltages produced by a resistive network in the determinations of polarity and battery type discrimination. In response to the determinations, the charging apparatus will disable the charging of the battery and provide and indication of the status of the battery cell charging.

Appellant has indicated that claims 7-18 stand or fall together as a single group.

(Brief at page 4.)

Independent claim 7 is a representative claim and reproduced as follows:

7. A battery cell charging system comprising:

a battery receiving well adapted to receive a plurality of separate battery cells each of the same size having first and second electrical contacts that define a battery voltage across the battery cells;

a transformer circuit that produces a transformer reference voltage and an output charging current for simultaneously charging the separate battery cells;

a reference network that produces a plurality of reference network voltages in response to the transformer reference voltage;

a reverse polarity detector circuit that determines if the battery voltage is less than a first predetermined one of the reference network voltages, thereby indicating at least one of the battery cells was received in the battery receiving well with an incorrect electrical polarity;

a battery type discriminating circuit that determines if the battery voltage is greater than a second predetermined one of the reference network voltages, thereby indicating at least one of the battery cells in the receiving well is not a rechargeable battery cell; and

a charging circuit coupled to the transformer circuit and to the battery cells that operates in a non-charging mode if the reverse polarity detector circuit determines that at least one of the battery cells was received in the battery receiving well with an incorrect polarity or if the battery type discriminating circuit determines that at least one of the battery cells is not a rechargeable battery cell and otherwise operates in a charging mode for charging the battery cells.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Dey	4,571,533	Feb. 18, 1986
Hodgman et al. (Hodgman ('144))	4,577,144	Mar. 18, 1986
Patino et al. (Patino)	5,184,059	Feb. 02, 1993

The prior art references of record relied upon by the Board in rejecting the appealed claims are:

Dey	4,571,533	Feb. 18, 1986
Hodgman et al. (Hodgman ('144))	4,577,144	Mar. 18, 1986
Hodgman et al. (Hodgman ('243))	4,628,243	Dec. 09, 1986

Claims 7-18 stand rejected under 35 U.S.C. § 103 as being unpatentable over Dey

in view of Hodgman ('144) and Patino.

Rather than reiterate the conflicting viewpoints advanced by the Examiner and the appellant, we make reference to the brief³ and answer⁴ for the details thereto.

OPINION

After a careful review of the evidence before us we disagree with the Examiner that claims 7-18 are properly rejected under 35 U.S.C. § 103 and we will not sustain the rejection of claims 7-18. We reverse and make new grounds of rejection under 37 CFR § 1.196(b). In addition, we raise additional issues which appellant and the examiner should consider in the event this subject matter is further prosecuted.

Turning to the rejection of claims 7-18, appellant argues that the combination of Dey, Hodgman ('144) and Patino would not provide a charging system having the claimed reference network, reverse polarity detector circuit and battery type discriminator circuit. (See brief at page 6, paragraph 3.) We agree. Appellant further argues that none of the systems relate to multiple batteries. (See brief at pages 5-6; page 6, paragraph 3.) We disagree. Dey is directed to a single battery housing for an

³ Appellant filed an appeal brief, June 19, 1995, (Paper No. 12). We will refer to this appeal brief as simply the brief. In response to the examiner's answer, appellant filed a reply brief, September 18, 1995, (Paper No. 14). We will refer to this reply brief as simply the reply.

⁴ The Examiner responded to the brief with an examiner's answer mailed August 15, 1995, (Paper No. 13). We will refer to this examiner's answer as simply the answer. The Examiner responded to the reply with an supplemental examiner's answer mailed November 2, 1995, (Paper No. 15). We will refer to this supplemental examiner's answer as simply the supplemental answer.

automobile battery. An automobile battery would have multiple separate battery cells of the same size and each would have internal contacts to each other. Hodgman ('144) and Patino do not clearly teach multiple separate battery cells.

Dey is relied upon by the Examiner to teach the use of a "reverse polarity detector circuit" and that the charging circuitry "operates in a non-charging mode if the reverse polarity detector determines that at least one of the battery cells was received in the battery receiving well with an incorrect polarity" as set forth in the language of claim 7. Clearly, Dey does not operate the charging circuitry in a non-charging mode in response to reverse polarity detections. Dey merely detects the reverse polarity and sounds an alarm.

Appellant argues that the combination of the three references lack "a reference network that would enable such networks." (See brief at page 6, paragraph 3.) We disagree. The claims do not require the reference network to "enable" the other circuits, but only that the reference are voltages used by the circuits. Furthermore, Hodgman ('144) does disclose the use of a reference voltage source, but not how the voltage is formed. A resistive network was a common means to provide a reference voltage by a voltage divider circuit. (See Hodgman ('243) discussed *infra*.) None of the references clearly teach or suggest the reference network that "produces a plurality of reference network voltages in response to the transformer reference voltage" as set forth in claim 7 and the Examiner has not provided a motivation to modify the combination of

references. The Examiner has cited Dey for teaching this feature and cited to Col. 1, lines 37-40 of the reference. We do not find any teaching at this point in the Dey reference concerning multiple reference voltages.

Appellant argues the combination of references and specifically that the Patino reference discloses recharging of battery packs using a pocket and this is not directed to the problem of mixing of batteries as is the claimed invention. (See brief at pages 4-5). We agree. The Examiner has not provided adequate motivation for combining the teachings of Patino with those of Dey and Hodgman ('144). Appellant further argues that the references do not mention "simultaneously charging separate battery cells." (See brief at page 4.) We agree, but note that the language of claim 7 does not explicitly require "simultaneously" charging, therefore the argument is beyond the scope of the claim language.

We find that the examiner has not met the burden of setting forth a ***prima facie*** case of obviousness in rejecting claims 7-11. Our reviewing court has stated that obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." ***In re Keller***, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). Here, the prior art contains neither a teaching nor a suggestion to include a polarity detector which controls the charging circuit and the use of multiple reference voltages in the control of the charging circuitry as set forth in the

language of claim 7 discussed above.

Furthermore, it appears to us that the examiner relied on hindsight in reaching his obviousness determination. However, our reviewing court has said, "[t]o imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." **W. L. Gore & Assoc. v. Garlock, Inc.**, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the Examiner. Upon evaluation of all the evidence before us, it is our conclusion that the evidence adduced by the examiner is not sufficient to establish a **prima facie** case of obviousness with respect to claim 7. Accordingly, we will not sustain the examiner's rejection of claim 7 under 35 U.S.C. § 103.

Since all the limitations of independent claim 7 are not suggested by the applied prior art, we cannot sustain the examiner's rejection of appealed claim 8 through 11 which depends therefrom, under 35 U.S.C. § 103.

With respect to claims 12-18, we do not comment on the art rejection as it applies to claims 12-18 because we do not find the claims sufficiently definite to formulate an opinion as discussed in the new grounds of rejection under 37 CFR § 1.196(b) below.

NEW GROUNDS OF REJECTION

Under the provisions of 37 CFR § 1.196(b), we enter the following new grounds of rejection.

We emphasize here that claim 12 contains unclear language which renders the subject matter thereof indefinite for the reasons stated below as part of our new rejection under 35 U.S.C. § 112, second paragraph. We find that it is not possible to apply the prior art to claims 12 -18 in deciding the question of obviousness under 35 U.S.C. § 103 without resorting to speculation and conjecture as to the meaning of the questioned limitation in claim 12.

This being the case, we are therefore constrained to reverse the examiner's rejection of claims 12 -18 under 35 U.S.C. § 103 in light of the holding in In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962). This reversal of the examiner's rejection is based only on the procedural ground relating to the indefiniteness of these claims and therefore is not a reversal based on the merits of the rejection of claims

12-18.

Claims 12-18 are rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the invention.

Claim 12 and its dependent claims 13-18, are considered indefinite because the claim recites "a charging circuit ..." in paragraph 4 and "a charging circuit ..." in paragraph 8 of the claim. It is unclear whether appellant intends to reference the charging circuit in paragraph 8 to the prior charging circuit introduced in paragraph 4 or to introduce a second charging circuit. We have reviewed the specification and drawings and do not find another charging circuit. We do find a "quick charge cycle followed by a trickle charge cycle, which most effectively charges secondary batteries." (See specification at page 9, paragraph 2.)⁵ Does appellant merely desire to claim a single charging circuit or does appellant desire to claim separate charging circuits or a single circuit with two charging cycles? If appellant desires merely a single charging circuit in paragraph 4 with a reference thereto in paragraph 8 of claim 12, then the prior art rejection by the examiner would be reversed in a similar manner as with respect to claim 7 and the new grounds of rejection under 35 U.S.C. § 103 would similarly apply.

Claims are considered to be definite, as required by the second paragraph of 35

⁵ We have briefly reviewed the specification in this paragraph and question how capacitor C3 discharges to a voltage level that is "higher than the zener diode reference voltage level." The capacitor C3 would appear to be charged to a value V_f which is higher than V_z . Therefore, the capacitor would either charge higher or discharge lower than V_z .

U.S.C. § 112, when they define the metes and bounds of a claimed invention with a reasonable degree of precision and particularity. See In re Venezia, 530 F.2d 956, 958, 189 USPQ 149, 151 (CCPA 1976). Here, claims 12-18 do not define the metes and bounds of a claimed invention with a reasonable degree of precision and particularity.

Claim 7 is also rejected under 35 U.S.C. § 103(a) over Hodgman et al ('243)⁶ in view of Hodgman et al.('144) and Dey.

The Hodgman ('243) patent discloses a battery charging system for charging rechargeable batteries. Hodgman ('243) discloses a transformer for providing a reference voltage V_{cc} and providing the charging current. Hodgman ('243) teaches the use of a resistive network having plural resistors, 53, in a voltage divider to produce reference voltages used in the processing within the charger circuitry. Hodgman ('243) disclose in Figures 1 and 2 that the charging of separate same sized battery cells may be done individually or with plural cells with the same charging circuit.

Hodgman ('243) does disclose a case, 15, for holding a single battery in Figure 1, but does not explicitly disclose a battery receiving well adapted to receive the plurality of

⁶ A copy of Hodgman et al. ; US Patent 4,628,243 was cited by appellant in the information disclosure statement filed on July 29, 1993. A copy of the reference is NOT ENCLOSED with this decision.

We have rejected only claim 7 of the instant application in order to show the appellant and the Examiner the breadth of the claimed invention. We do not give an opinion as to the novelty or obviousness of the claimed invention beyond claim 7. We have not applied prior art against claims 12-18 due to the problems noted above with determining the scope of the claims. The examiner should review the prior art and claims to make any further rejections as the Examiner deems appropriate.

cells, but there would inherently have been a required structure to hold the plural batteries in electrical and physical contact with the charging circuitry as shown in Figure 2. (See col. 3, paragraph 5.) Hodgman ('243) does not disclose the use of the battery voltage, across the plural cells, as the parameter to discriminate between the primary and secondary batteries. Hodgman ('243) discloses the user of conductive bands, 26 which are sensed, complete the circuit and enable the charging if the correct type of battery is present. (See col. 3, paragraphs 2-4.) Improper battery type operates the charging system in a non-charging mode. Hodgman ('243) also discloses using the conductive band and an impedance which produces a voltage which is compared to reference voltages to determine if the battery is a rechargeable type. (See col. 5, paragraph 2.) The conductive bands are placed in a manner so that the circuit will not operate if the battery is inserted into the charger with reverse polarity. This too would disable the charging of the battery cells by placing the charger in a non-charging mode. (See col. 3, paragraph 4.) In Figure 4 Hodgman ('243) disclose a combination of the conductive bands and sensing an impedance using a voltage divider.

Hodgman ('144) discloses a battery charging apparatus including discrimination sensing circuitry to determine if the battery is of the type which is rechargeable. Hodgman ('144) disclose that the voltage of a primary battery is higher than that of a secondary

battery. The higher voltage indicating that an improper battery type is present in the charger and the charger would operate in a non-charging mode. The measured voltage is compared to a reference voltage or threshold. (See col. 3, paragraph 3.) Hodgman ('144) further disclose various other methods of measuring impedance and ripple voltage for battery type discrimination. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Hodgman ('243) and Hodgman ('144) since each is related to recharging of rechargeable battery cells. Hodgman ('144) teaches discrimination of battery type rather than using conductive bands on rechargeable batteries. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Hodgman ('243) with the disclosed method of Hodgman ('144) using the known relationship of cell voltages between primary and secondary battery types to obviate the need for conductive bands. With the removal of the conductive bands the skilled artisans would have also needed to provide for the sensing of reverse polarities and disabling the charger as taught by Hodgman ('243). The skilled artisan would have

found the Dey reference. Dey teaches a methodology to detect reverse polarity in a battery recharging system. The Dey patent also disclose a battery charging system which provides a signal to an operator in the occurrence of a reverse polarity situation rather than

disabling operation. Dey disclose the charging of automobile batteries which are an accumulation of series connection of similar sized cells which form a larger battery cell. Dey disclose the parallel connection of a resistor, 705, a sound signal means, 702, and a diode, 703, to limit current flow. Related to the current flow in the reverse direction would be a negative or reversed voltage. Dey is a teaching that a parameter in the combined cells may be used to indicate the presence of a reverse polarity condition. In a separate multiple cell arrangement as taught by Hodgman ('243), the sensing of voltage rather than current flow would be desirable as with the use of the bands. Therefore, the skilled artisan would have been motivated to sense voltage. If a battery is reverse polarized, the voltage would be less than a reference voltage or threshold. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Dey with those of Hodgman ('243) and Hodgman ('144) since the skilled artisan would have desired to have a replacement for the sensing of the combination of the conductive band and resistive circuit if the conductive bands were removed. The combination of the teaching of Hodgman ('243) concerning the reference voltage for sensing the appropriate resistance in the rechargeable battery would have similarly motivated the skilled artisan to use the sensed voltage of the battery cells to determine polarity.

CONCLUSION

To summarize, the decision of the examiner rejecting claims 7 through 18 under 35 U.S.C. § 103 is reversed. The decision of the examiner is reversed. A rejection of claims 12-18 under 35 U.S.C. § 112, second paragraph, has been applied by the Board along with a rejection of claim 7 under 35 U.S.C. § 103.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b)(amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gas. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides that, "A new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (§1.197(c)) as to the rejected claims.

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197(b) by the

Appeal No. 96-0656
Application 08/099,277

Board of Patent Appeals and Interferences upon the same record. . . .

REVERSED - 37 CFR § 1.196(b)

JAMES D. THOMAS)	
Administrative Patent Judge)	
)	
)	
)	BOARD OF PATENT
MICHAEL R. FLEMING)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
)	
)	
)	
JOSEPH L. DIXON)	
Administrative Patent Judge)	

vsh

Appeal No. 96-0656
Application 08/099,277

Thomas H. Close
Eastman Kodak Company
Patent Legal Staff
Rochester, NY 14650-2201